# Friction Loss

Friction loss of tubing calculated in pounds per square inch (PSI) of pressure lost per foot of tubing with a friction constant = 70 and no bends. Sharp bends are calculated the same as for fittings and gradual bends calculated the same as straight pipe.

| GPM | NOMINAL SIZE (ID) | | | |
|---|---|---|---|---|
| | 1/2" | 3/4" | 1" | 1-1/4" |
| 1 | 0.032 | 0.004 | 0.002 | 0.001 |
| 2 | 0.114 | 0.015 | 0.005 | 0.002 |
| 3 | 0.241 | 0.032 | 0.012 | 0.004 |
| 4 | 0.410 | 0.055 | 0.020 | 0.008 |
| 5 | 0.619 | 0.083 | 0.030 | 0.011 |
| 6 | 0.867 | 0.117 | 0.042 | 0.016 |
| 7 | 1.153 | 0.156 | 0.055 | 0.021 |
| 8 | 1.476 | 0.199 | 0.071 | 0.027 |
| 9 | 1.836 | 0.248 | 0.088 | 0.034 |
| 10 | 2.231 | 0.301 | 0.107 | 0.041 |

**Note:**

1. Table is based on the *Hazen-Williams formula.
2. Fluid velocities in excess of 5-8 ft/sec are not recommended.
3. Friction loss values shown are for the flow rates that do not exceed a velocity of 8 ft/sec.

$$*P = \frac{4.52Q^{1.85}}{C^{1.85}d^{4.87}}$$

Where: P = friction loss, psi per linear foot
Q = flow, gpm
D = average, I.D., in inches
C = constant, 70